BBVA | RESEARCH

Country Risk Quarterly Report

Cross-Country Emerging Markets – January 2012

Summary

Financial Markets & Global Risk Aversion	• **Financial Stress increased rapidly during the fourth quarter as the European Sovereign Crisis remained unsolved. Stress levels** increased also in the US and EM markets **showing a high degree of inter-connection**. Traditional **Emerging Markets (EM) stress indicators reversed but they remained far from previous crisis episodes stress levels** • **Capital flows retreated worldwide during the second half of 2011**. **By region, the most intense capital outflows were observed in Europe (both developed and emerging)**
Sovereign Markets & Ratings Update	• **A general increase in Sovereign CDS spreads was observed in Western Europe**. **Despite the recent S&P downgrade, the markets is still discounting additional downgrades in some European countries. The same is also true for some Eastern European countries while some upgrades are expected in Latam and Asia**
Our own country risk assessment	• **According to our vulnerability maps, macroeconomic vulnerability remains high in Western Europe, specially in the periphery.** Despite the fiscal consolidation efforts, **fiscal sustainability remains challenging as high risk premium and poor economic perspectives combined with high and increasing public debt levels pose important risks**. However our rating models point to stabilization of the rating downward pressure in some of the Southern European countries. The downward pressure, however, should continue in the bailed out countries. **Our country risk models point to an increase in the equilibrium sovereign risk in Southern Europe but still very far away from what the markets are pricing in the CDS market. On the contrary, the equilibrium sovereign risk of bailed out European countries has continued to increase approaching market levels.** • Finally, in **Asia and Latam vulnerability remains low with a relatively worse situation in Eastern Europe.**

Summary

Special Topics

- **Middle East Social Unrest:**
- Social Unrest persists in some of the countries and **a renewal of social tensions can not be ruled out**. Our Social Unrest Tracker signals that the **social unrest dynamics can spread very rapidly to the rest of the countries and the situation is far from being solved**. So far, social unrest have been concentrated in less worrying countries from a Global Economic implications point of view, but moving to the Gulf Emirates , Saudi Arabia and Iran would have more serious implications for the Global economy. **We assign less risk to an escalation of the Iranian "affaire" , but negative consequences for the world economy would be significantly higher** than the "social unrest revival scenario
- **Idiosyncratic risk in Emerging Europe:**
- Besides higher relative vulnerability,. **traditional Bank funding from Western Parent Banks** increase the funding problems as the Eastern Europe branches are not fully independent as the Latin America ones. **The practice of euro denominated lending increase the risks of foreign exchange depreciation** as this will imply a credit tightening for households and corporates. **Combined with low international reserve adequacy this situation places the region as highly vulnerable to sudden stops of capital flows**

Spill-over Analysis

- **Results from our GVAR spill over analysis point to potentially important negative spill-overs from Europe´s crisis to Eastern Europe and a few Latam and Asian countries.** This is specially the case for Turkey and more open economies in the rest of Emerging Markets as Malaysia, Singapore and Indonesia in Asia and Peru and Chile in Latin America
- **The Spill-over from a sudden negative shock in China´s growth would be more concentrated in the rest of the Asian economies. However, more open economies in the rest of the world (Latin America) will be also exposed to the negative consequences**

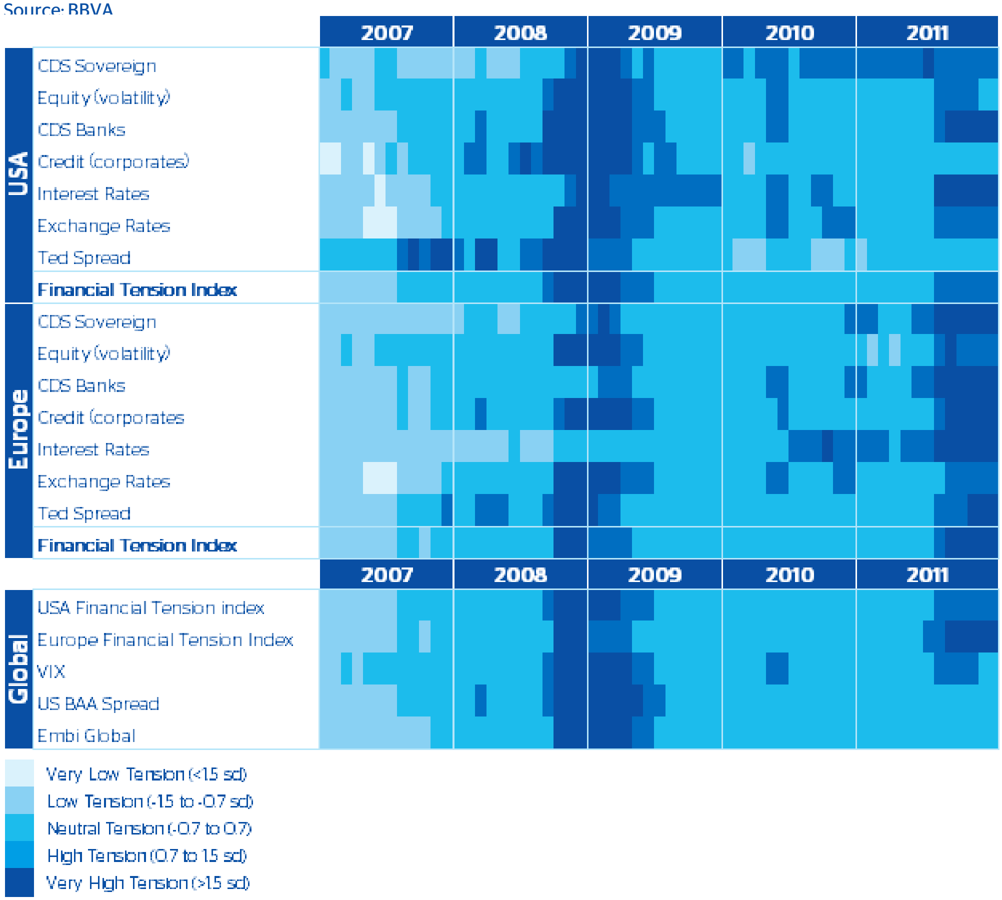
Index

Section 1

Financial Markets Stress & Global Risk Aversion

Financial Stress Map

Source: BBVA



- **Developed Markets Financial Stress remained high during the last quarter of 2011** as uncertainty around the European Sovereign Debt Crisis lingers. Stress levels are reaching maximums in Europe and finally spreading to some US markets segments although levels of financial stress in the US are still below the 2008 episode. Emerging Markets stress also increased but remains far from previous crisis episodes
- **Europe´s Financial Stress continues to lead volatility** with most of the components moving to the high stress area. Sovereign and Bank CDS tensions continue to be high and spreading to equity, interest rates, as well as to the more worrisome Ted Spread reflecting some interbank liquidity problems
- **US Financial Stress increased as contagion from Europe is becoming more evident**. This has been the case of the sovereign, bank and interest rates volatility. On the positive side, the Ted Spread remains in a more safest area limiting the potential damage of interbank problems
- **Traditional EM global risk aversion indicators also deteriorated, although current levels of stress are still far from levels observed during Lehman´s collapse**. The VIX increased sharply but below previous high stress levels and turned back to more normal levels in December and January. Debt related proxies for Global Risk Aversion (US Baa and Embi spreads) also deteriorated but remain far from Lehma´s stress levels

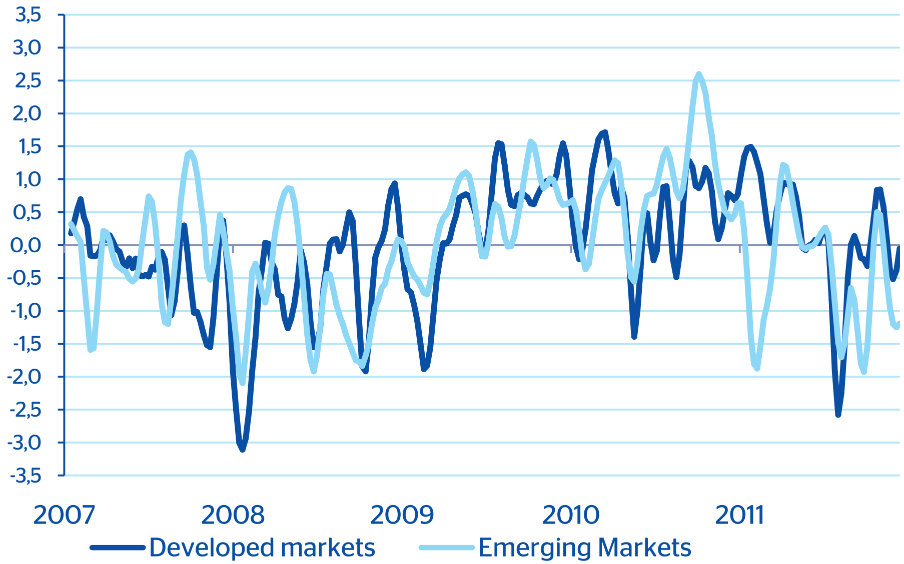
Section 1

Capital Flows Update

Equity & Bonds Net Inflows

(in standardized units over the 2006-2011 period)

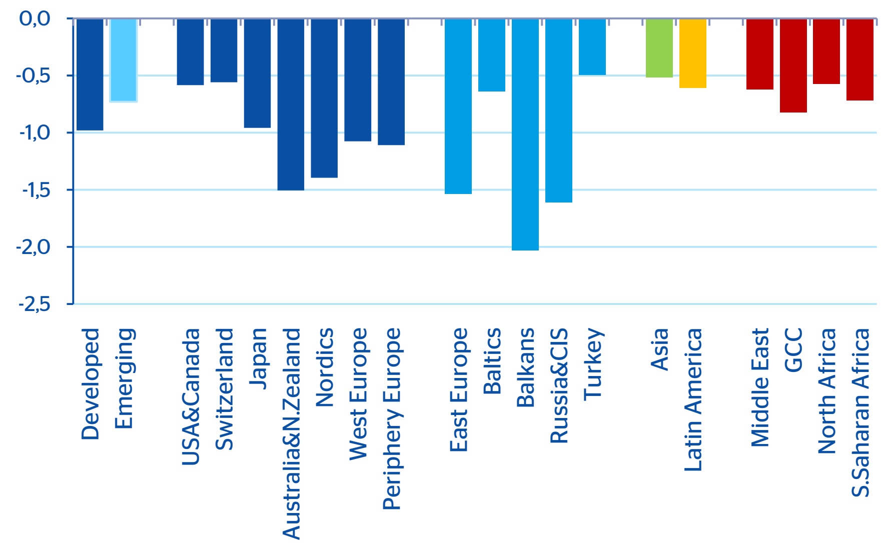
Source: EPFR and BBVA Research



Equity & Bonds Net Inflows Reversal

(change between Jan-Jul to Aug-Dec 2011 in standardized units over the 2006-2011)

Source: EPFR and BBVA Research



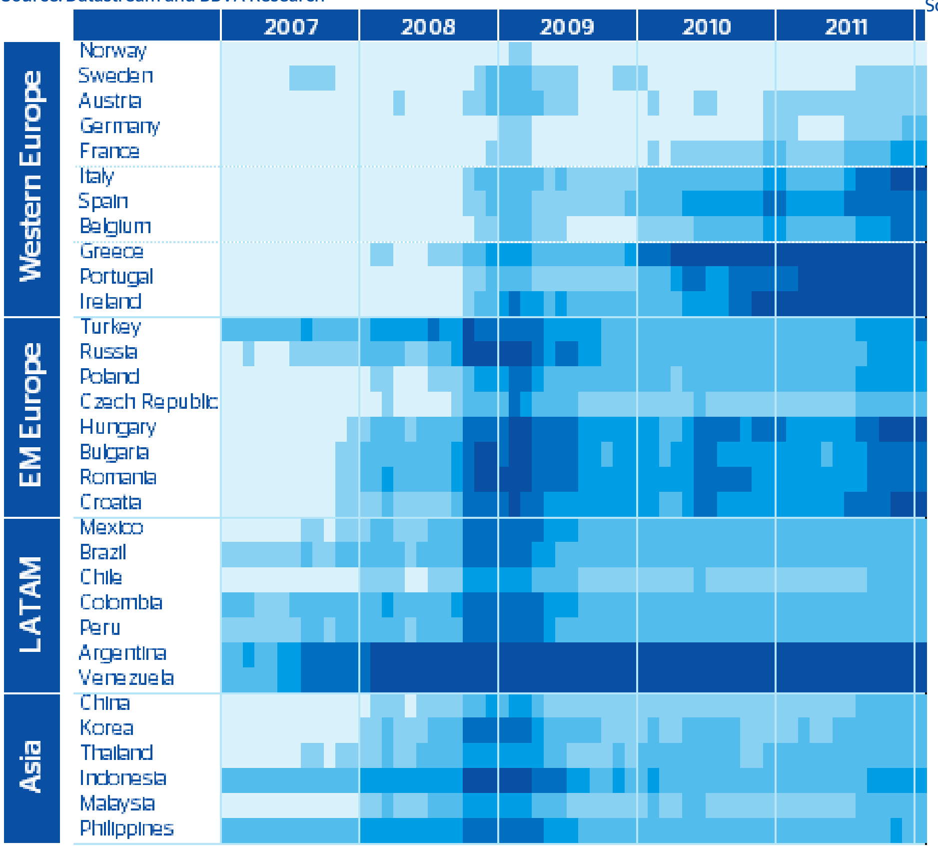
- **Capital Flows (Bond & Equity) retreated in most of emerging and developed markets since Q2-2011** as sovereign debt crisis finally hitted investor sentiment and spilled over to Emerging Markets flows since the beginning of the summer
- **Capital Flows reversals** (difference between the first half of the year inflows and post-august outflows) **were more intense in both Developed and Emerging Europe. The reversal of capital flows reached also to Developed commodity exporters and Nordics countries**. **Despite the general capital flows reversal in the Emerging Markets** group, **some regions were specially affected**.. This is **specially the case of the Emerging Europe** Group (particularly the Balkans and former CIS countries). Meanwhile, In **Asia, Latam and Middle East reversals were milder**

Section 2

Sovereign Markets Update

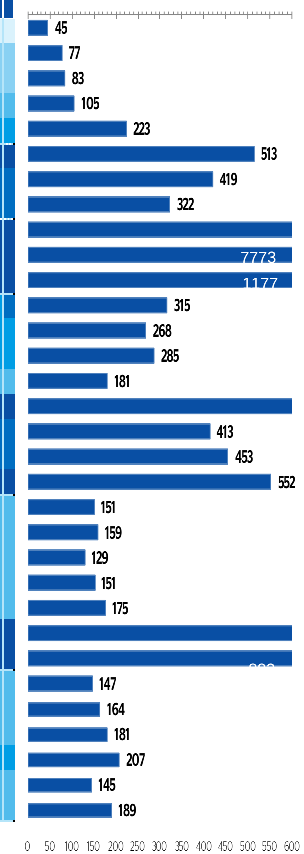
Sovereign CDS spreads

Source: Datastream and BBVA Research



January 2012

Source: Datastream



Sovereign CD Swaps Map: It shows a color map with 6 different ranges of CD Swaps quotes (darker >500, 300 to 500, 200 to 300, 100 to 200, 50 to 100 and the lighter below 50 bp)

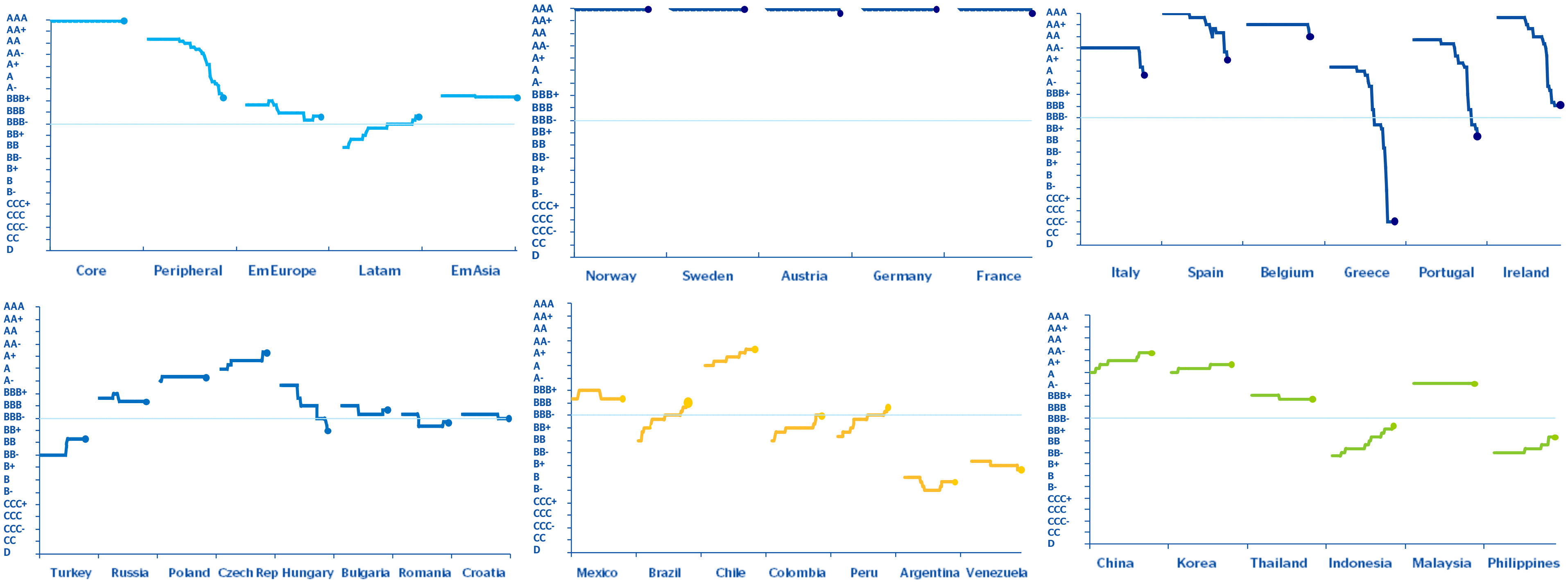
- **Europe´s CD Swaps spreads continued to widen but diverging.** Only Norway remained below 50bp as Austria and Germany finally increased almost reaching 100bp showing some contagion from EU periphery. Among the latter, Italy and Spain experienced increasing risk levels, with the former surpassing the Spanish one and nearing 500 bp as uncertainty about the fiscal consolidation measures increased. Greece, Portugal and Ireland CD Swaps stays at critical levels despite bailouts programs
- **Some of the Eastern Europe sovereign CD Swaps experienced high increases during the last quarter of 2011 .** Hungary´s situation deteriorated very fast driven by economic and political uncertainty. Bulgaria, Romania surpassed the 400 bp mark and Croatia´s impact was also noteworthy. Contrary, Turkey, Poland and Russia deterioration was not specially intense.
- **Latin America sovereign CD Swaps remained at relatively safe levels in the Emerging Markets group**. Chile continued to be the outperformer and Mexico and Brazil stayed near 130 bp. **Argentina and Venezuela remained the outliers in the region** with CDS spreads showing high levels of risk
- **Asian CDS spreads experienced also contagion and began to rise before the summer**. China, Korea and Malaysia stayed near 150 pb meanwhile Indonesia and Philippines reached 200 bp

Section 2

Sovereign Credit Ratings Update

Sovereign Rating Index 2007-2012

Source: BBVA Research by using S&P, Moodys and Fitch Data



Sovereign Rating Index: An index that translates the three important rating agencies ratings letters codes (Moody´s, Standard & Poor´s and Fitch) to numerical positions from 20 (AAA) to default (0). The index shows the average of the three rescaled numerical ratings.

- **Developed Europe**: Sovereign Debt Crisis continued to triggered downgrades by credit agencies with some of the Europe Core countries now joining the list of the downgrade Cycle after the downgrade by Standard and Poor´s
- **The EM Markets downgrade cycle is being asymmetric with Emerging Europe under downgrade pressure and some of the Asian and Latam markets receiving sovereign ratings upgrades (Brazil and Indonesia).** The possibility of a revival of downgrade pressure for Emerging Europe can not be ruled out as spill-overs from western Europe are more obvious and vulnerability stays at higher levels. Trade and Bank dependence with West Europe and FX denominated liabilities could increase the downgrade pressure in the coming months

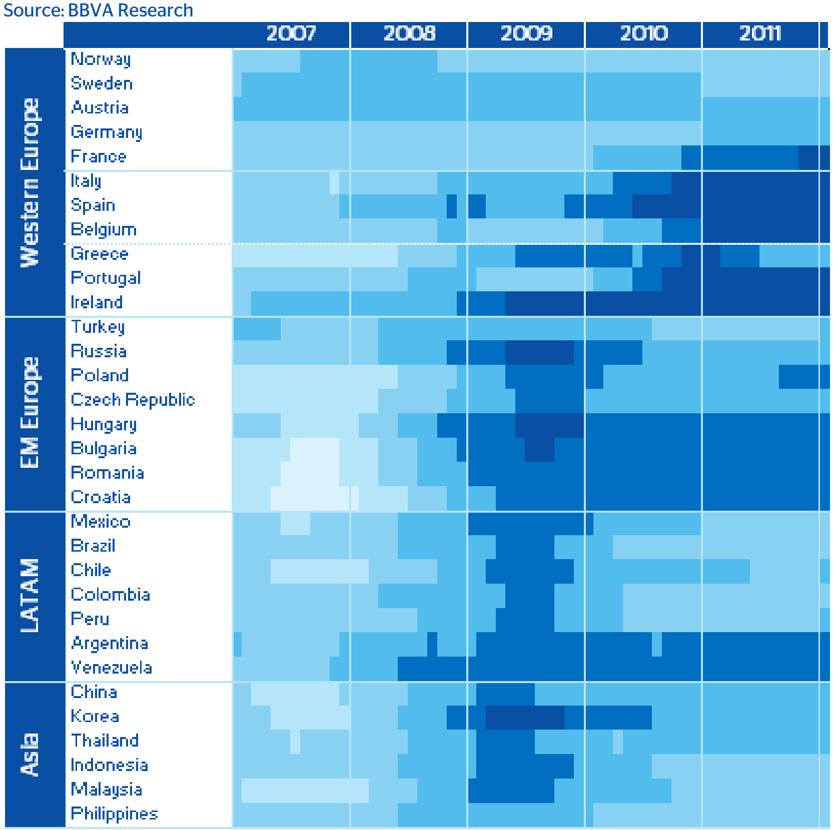
Section 2

Sovereign downgrade Pressures Map

Rating Agencies Downgrade Pressure Map

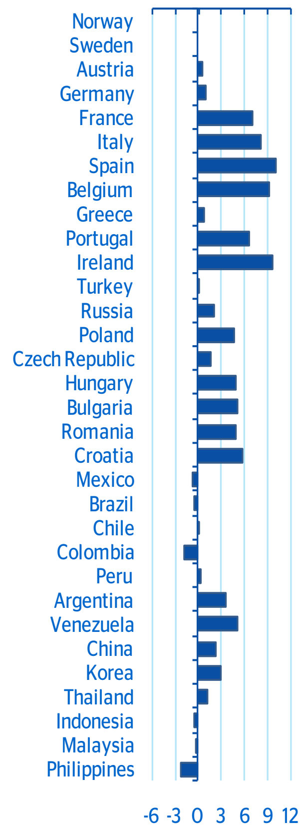
(actual minus CDS-implied sovereign rating, in notches)

Source: BBVA Research



January 2012

Source: BBVA Research



- **West Europe remains the most vulnerable region to a new downgrade cycle** with the possibility of new downgrades including now the AAA countries. Short term **Downgrade pressure** (as measured by the current and the market implicit rating) **remains specially high in some of Western Europe Countries**. In most of the economies except the Nordic countries, Germany and Austria current ratings are well above the CDS-implied ratings (3 or more notches). Spain, Belgium and Italy remain the most vulnerable to downgrades, but France is also quoting far above its current rating
- **The situation in EM markets is quite different as most of the countries except Emerging Europe remain at a relative safe area**
- **Pressure for downgrades in Emerging Europe is in creasing** specially in Hungary, Bulgaria, Romania and Croatia. Poland short term pressure is also high with Turkey and Russia remaining in the neutral area
- **Latam region remains safe** with most of the countries (except Venezuela) anchored in the neutral area. Contrary, Colombia is showing some upgrade pressure.
- **Asia**, remains in the neutral area although some tensions appeared in China and Korea. Philippines remains the safest.

Downgrade Pressure Map: The map shows the difference of the current ratings index (numerically scaled from default (0) to AAA (20)) and the implicit ratings according to the Credit Default Swaps. We calculate implicit probabilities of default (PDs) from the observed CDS and the estimated equilibrium spread. For the computation of these PDs we follow a standard methodology as the described in Chan-Lau (2006) and we assume a constant Loss Given Default of 0.6 (Recovery Rate equal to 0.4) for all the countries in the sample. We use the resulting PDs in a cluster analysis to classify each country at every point in time in one of 20 different categories (ratings) to emulate the same 20 categories used by the Rating Agencies..

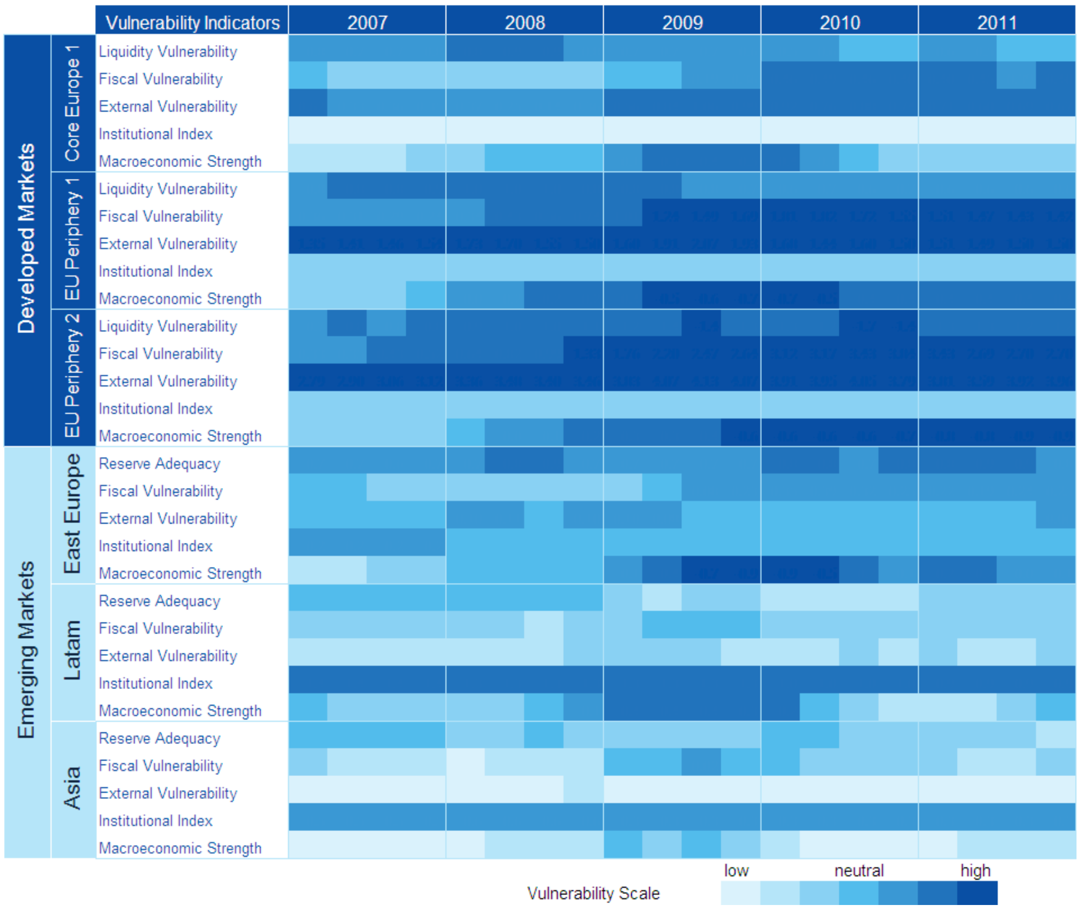
Section 3

World Vulnerability Map

Macroeconomic Vulnerability Map

(scaled through principal components of several vulnerability variables.)

Source: BBVA Research



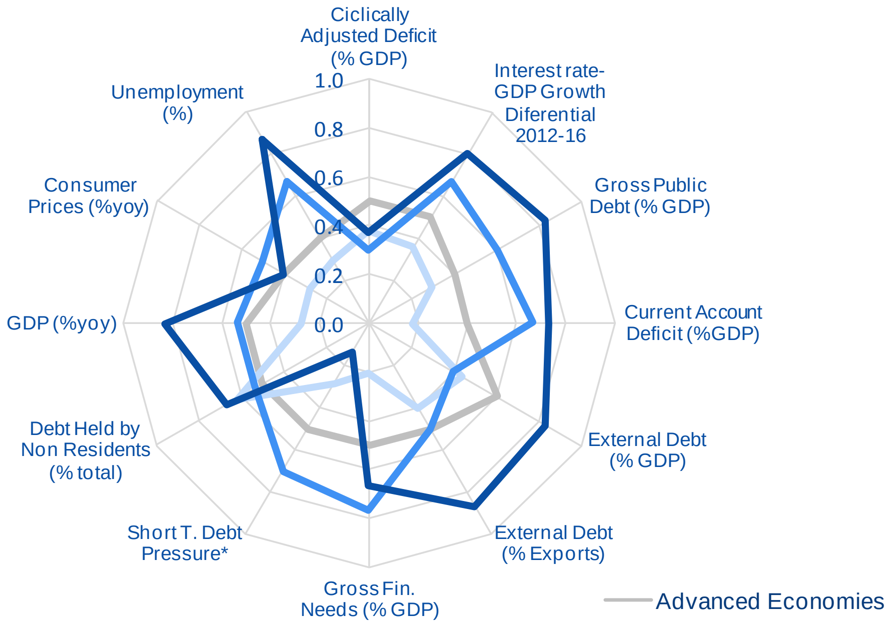
- **Europe´s Core Countries (Central Western Europe and the Nordics) vulnerability stays lower than periphery countries** but is still high relative to Emerging Countries. Liquidity management has improved somehow through 2011 but fiscal and external vulnerability are still high
- **EU Periphery Countries (Belgium, Italy, Spain)** remain at risk as fiscal and external vulnerability are still alive. Macroeconomic strength remains below Europe´s core countries as economic activity worsened and unemployment levels are still high
- **EU Bailed Out Countries (Greece, Ireland and Portugal)** remains extremely vulnerable in spite of fiscal adjustments. Vulnerability lowered in Ireland but was still not enough to exit the high risk area
- **Emerging Europe vulnerability stays above the rest of the EM** countries. Reserve adequacy is relatively worse making the region extremely vulnerable to capital flows reversal. Macroeconomic performance improved somehow but it is still high relative to EM
- **Latam vulnerability remains relatively low** with most of the components below the neutral levels. Recent performance has showed slight deterioration in the external vulnerability and macro strength as economic activity decelerates. Institutional vulnerability remains high
- **Emerging Asia remains the safest area among EM** with strong external and reserve adequacy positions and low fiscal vulnerability levels. Macro strength slightly worsened due to lower activity growth and relatively high inflation figures

Section 3

Regional Risk Update: Western Europe

West Europe: Vulnerability Radar 2011

(all data for 2011 excepts interest rate GDP growth differencial and Gross Financial Needs for 2012)



•Developed: (ST Public Debt/ Total Public Debt)
•Emerging : (Reserves to ST External Debt)
1: High vulnerability
0: Low vulnerability

Western Europe vulnerability stays at high level mainly due to higher vulnerability in EU Periphery countries. Although core countries (Nordics and Central Europe) remains at safe levels , most of **EU periphery vulnerability indicators remains relatively high**, with fiscal sustainability and external positions clearly at risk specially in the bailed out countries

- **Europe Core countries (Nordics & Central Europe) stays at safe levels.** Fiscal vulnerability is relatively low due to safe debt levels, low structural budget deficits and better interest rate growth differentials. With low levels of external debt and current account deficits external vulnerability is also supportive
- **Europe Periphery II ("Bailed out countries") vulnerability is extremely high**, Debt sustainability indicators remain at risk despite improvements in cyclically adjustment deficits and external vulnerability is also high. Short term pressure improved after the bail outs as relatively high Gross financing needs will be covered by official credits
- **Europe Periphery II (Belgium, Italy and Spain) position remain challenging**. Despite the improvements in cyclically adjustment deficits, interest rate GDP growth differentials and debt levels remain in the vulnerable area . External vulnerability is better than the bailed out countries but liquidity management will be challenging as high proportion of short term public debt levels and debt held by non residents are relatively high

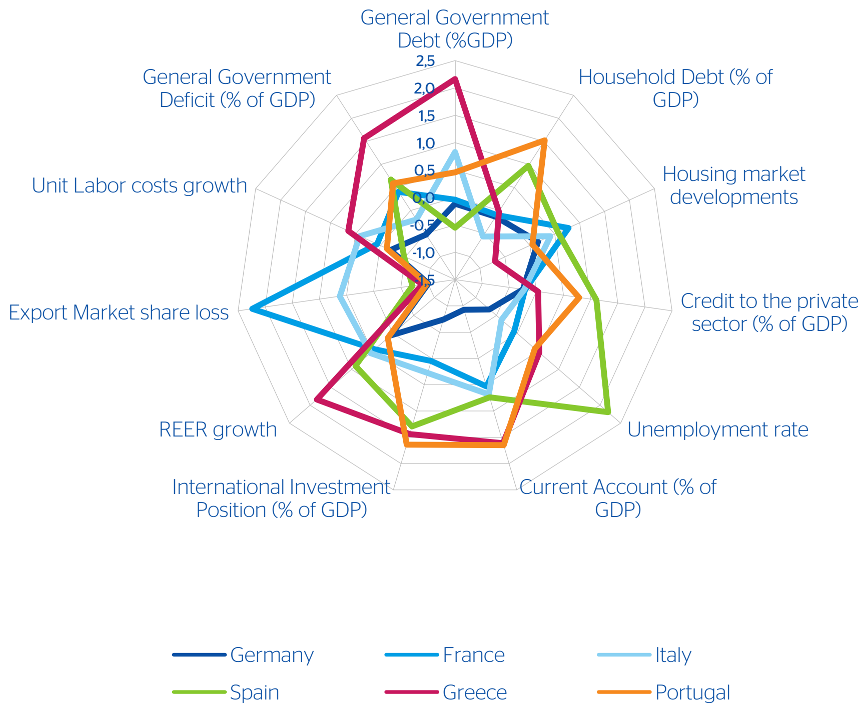
Vulnerability Radar: Shows a static and comparative vulnerability for different countries. For this we assigned several solvency , liquidity and macro variables and we reorder in percentiles from 0 (lower ratio among the countries to 1 maximum vulnerabilities.) Furthermore Inner positions in the radar shows lower vulnerability meanwhile outer positions stands for higher vulnerability.

Section 3

Inside Europe: Western Europe

West Europe: The EU Commission "6 pack"

Source: EU commisionand BBVA Research



2.5: High vulnerability -1.5: Low vulnerability

Both internal and external imbalances need to be corrected within the Eurozone members. The European Commission is implementing the "6 pack" to control for de needed adjustment of imbalances with a scoreboard that includes the following indicators:

- **Current account:** 3y average between +6%/-4% of GDP. Spain is rapidly converging, while Greece and Portugal is proving more persistent.
- **International Investment position:** The threshold is set at -35% clearly surpassed by the peripherals.
- **Private debt:** Not higher than +160% of GDP, currently showing signs of moderation.
- **Private sector credit flow:** Increases of the ratio on GDP above +15% will be considered risky.
- **Housing prices:** To not grow more than 6% on a yearly basis with respect the consumer price index.
- **General government debt:** The threshold remains at 60%, surpassed by the majority but given the austerity measures across members it will be expected to decline by 1/20 each year.
- **External competitiveness:** measured through unit labor costs, export market shares and real effective exchange rates developments.

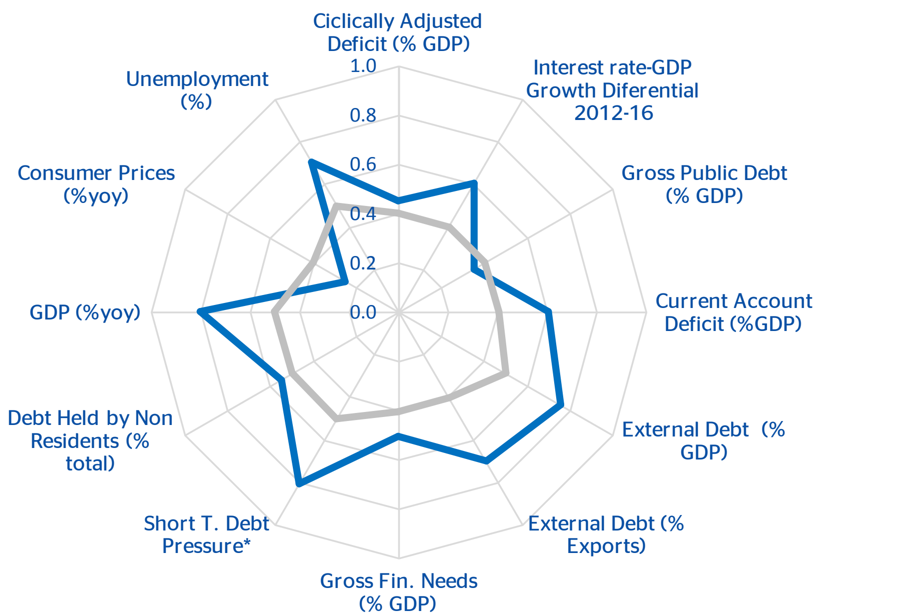
If not signs of correction are observed the Commission will issue a Excessive Imbalance Procedure "EIP" together with enforcement measures.

Section 3

Regional Risk Update: Emerging Europe

Emerging Europe: Vulnerability Radar 2011

(all data for 2011 excepts interest rate GDP growth differencial and Gross Financial Needs for 2012)
Source: BBVA Research



•Developed: (ST Public Debt/ Total Public Debt)
•Emerging : (Reserves to ST External Debt)
1: High vulnerability
0: Low vulnerability

Emerging Europe vulnerability remain clearly above of average Emerging Markets vulnerability. Trade and banking contagion channels from West Europe partner remains important adding special risk to this region.

- **Fiscal vulnerability remains high despite low levels of public debt.** Actual high fiscal deficits in some countries remain a risk, given poorer interest rate GDP growth differentials..
- **External sustainability remains the main challenge for vulnerability**. Current account deficits and external debt-to-GDP ratios are above world levels , posing some risks for capital flows reversals.
- **Reserve adequacy remains at average levels but also above EM**. With reserves-to-short term debt ratios near 100% the region remains vulnerable to a sudden stop in capital flows. Besides, euro denominated liabilities and financing dependence from Western Europe banks remains the key risks for the region.
- **Relatively low economic growth and higher inflation and unemployment pose additional risks.**

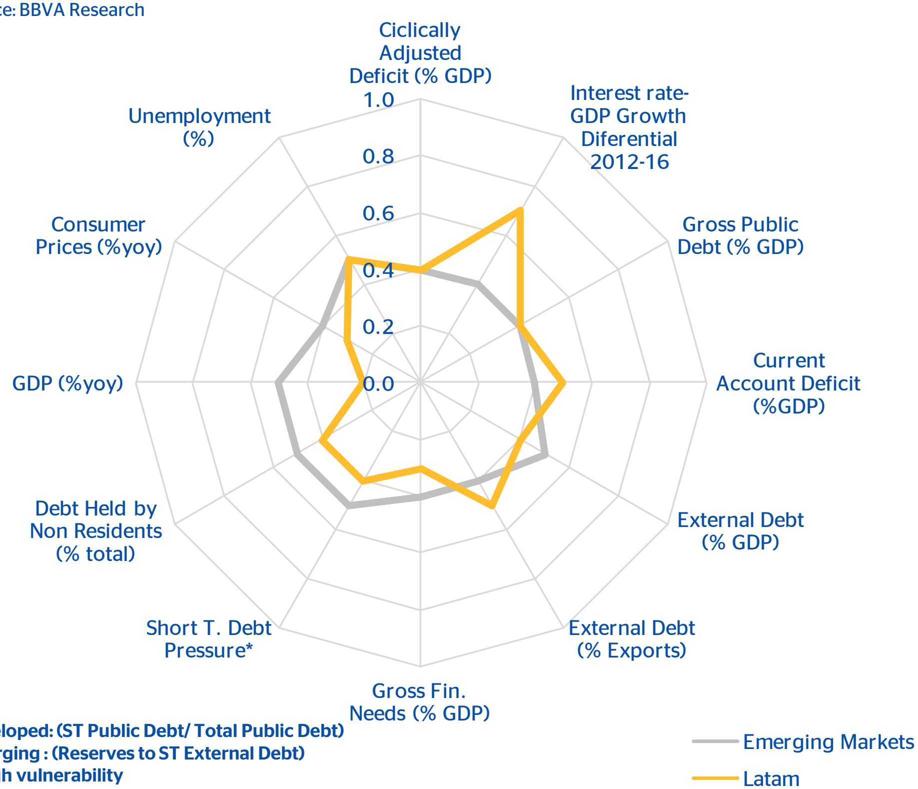
Vulnerability Radar: Shows a static and comparative vulnerability for different countries. For this we assigned several solvency , liquidity and macro variables and we reorder in percentiles from 0 (lower ratio among the countries to 1 maximum vulnerabilities.) Furthermore Inner positions in the radar shows lower vulnerability meanwhile outer positions stands for higher vulnerability.

Section 3

Regional Risk Update: Latam

Latam: Vulnerability Radar 2011

(all data for 2011 excepts interest rate GDP growth differencial and Gross Financial Needs for 2012)
Source: BBVA Research



Developed: (ST Public Debt/ Total Public Debt)
Emerging : (Reserves to ST External Debt)
1: High vulnerability
0: Low vulnerability

- **Vulnerability in Latam stays at relatively sound levels with the main exceptions being Argentina and Venezuela.** The significant improvement of fiscal and external ratios during the last decade provide the region with a much better position to cope with potential crisis episodes
- **Fiscal vulnerability remains** low, near average EM levels. Both actual and cyclically adjusted fiscal deficits remains at safe area, with relatively low public debt ratios providing an important cushion. However, relatively high interest rate GDP differentials poses some challenges for public debt dynamics in some of the countries (particularly in Venezuela)
- **External vulnerability is also low** with current account deficits being the only variable above world averages. However, external debt levels (both relative to GDP and exports) provide low levels of vulnerability
- **Liquidity pressures are relatively low.** Reserve adequacy ratios remains in the safest levels and gross financing needs and debt held by non residents stays at relatively low levels. This will provide some cushion in an hypothetical capital flows sudden stop
- **Inflation remains the main source of risk** particularly in Argentin a and Venezuela

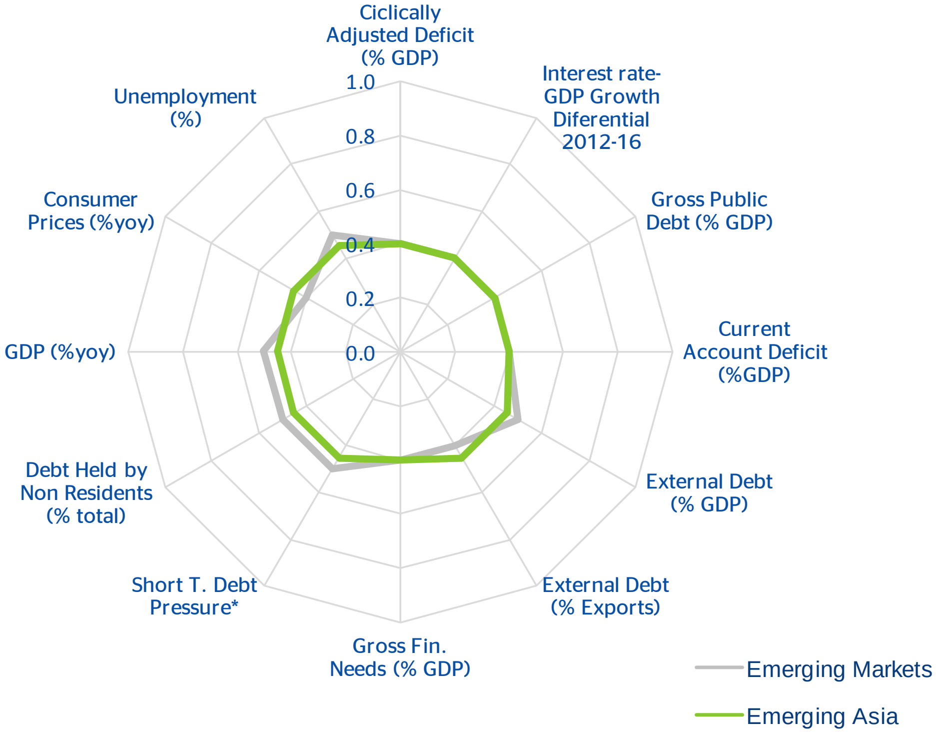
Vulnerability Radar: Shows a static and comparative vulnerability for different countries. For this we assigned several solvency , liquidity and macro variables and we reorder in percentiles from 0 (lower ratio among the countries to 1 maximum vulnerabilities.) Furthermore Inner positions in the radar shows lower vulnerability meanwhile outer positions stands for higher vulnerability.

Section 3

Regional Risk Update: Asia

Emerging Asia: Vulnerability Radar 2011

(all data for 2011 excepts interest rate GDP growth differencial and Gross Financial Needs for 2012)
Source: BBVA Research



- **Emerging Asia vulnerability stays the safest among the Emerging Markets.** This is the result of very low levels of fiscal and external vulnerability and strong reserve adequacy after years of international reserves accumulations. However, some dimensions as inflation remains a concern
- **Fiscal vulnerability remains an asset for the region** with very low fiscal deficits (current and cyclically adjusted) and safest public debt levels
- **External vulnerability is even lower** with very low levels of current account deficits (or even surplus) and historical low levels of external debt, providing an important buffer for potential capital flows reversals
- **Reserve adequacy ratios remains in the safest levels .** This is particularly the case of reserves in months of import covers but also the external short term debt to reserves ratios. Strong position in international reserves will provide further cushion for potential capital flows retreat
- **Economic growth and unemployment stays robust despite the economic activity deceleration . Inflation is the only source of concern** although we expect to moderate in the medium term

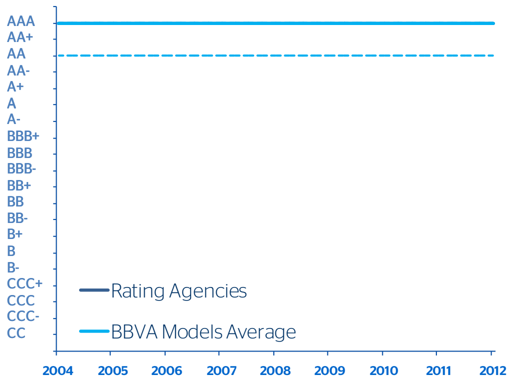
Vulnerability Radar: Shows a static and comparative vulnerability for different countries. For this we assigned several solvency , liquidity and macro variables and we reorder in percentiles from 0 (lower ratio among the countries to 1 maximum vulnerabilities.) Furthermore Inner positions in the radar shows lower vulnerability meanwhile outer positions stands for higher vulnerability.

Section 3

Regional Risk Update: Western Europe

Europe Core: Sovereign Rating

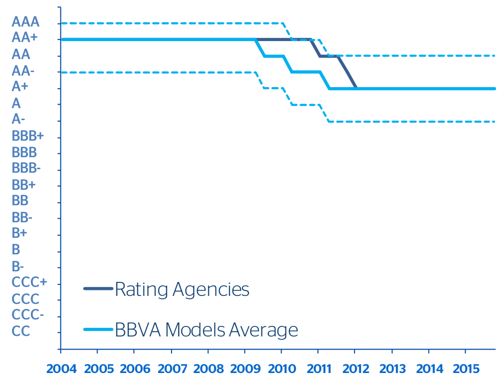
(Rating agencies and BBVA scores +-1std dev)



Europe Periphery I: Sovereign Rating

(Rating agencies and BBVA scores +-1 std dev)

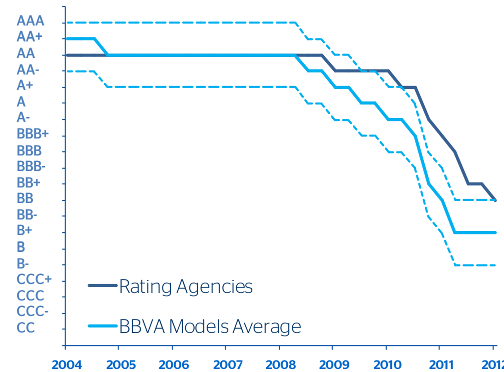
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



Europe Periphery II: Sovereign Rating

(Rating agencies and BBVA scores +-1 std dev)

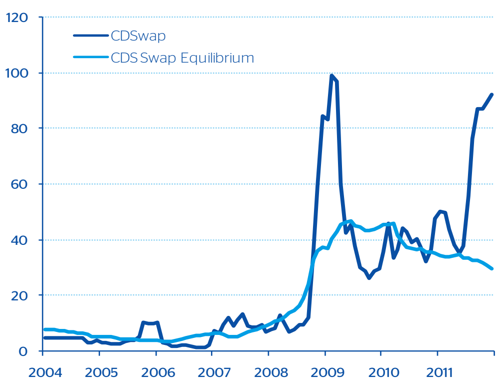
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



Europe Core: CD Swap

(Actual and Equilibrium CDSwap)

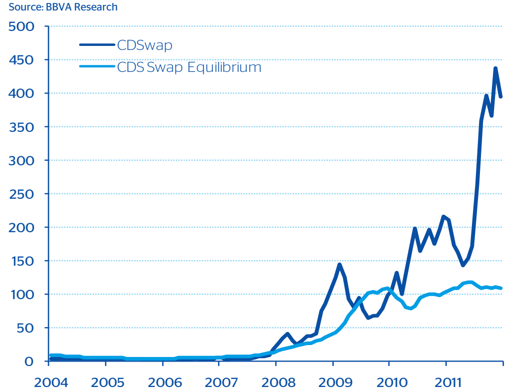
Source: BBVA Research



Europe Periphery I: CD Swap

(Actual and Equilibrium CDSwap)

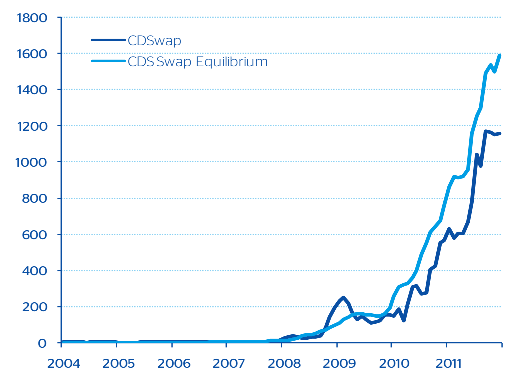
Source: BBVA Research



Europe Periphery II: CD Swap

(Actual and Equilibrium CDSwap)

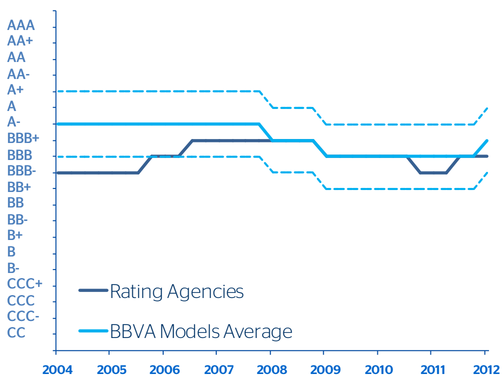
Source: BBVA Research



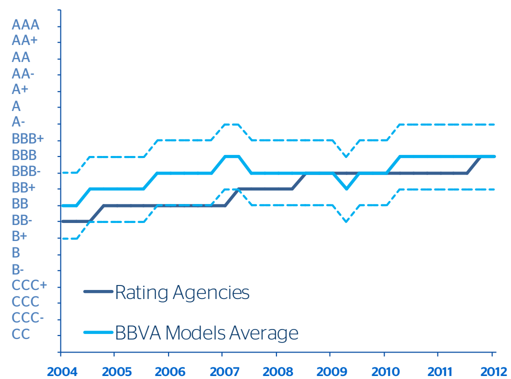
Section 3

Sovereign Ratings: Emerging Markets

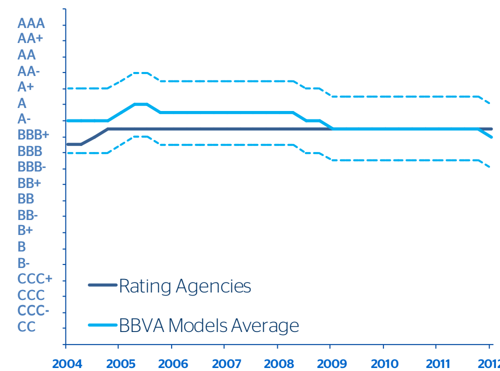
EM Europe: Sovereign Rating
(Rating agencies and BBVA scores)
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



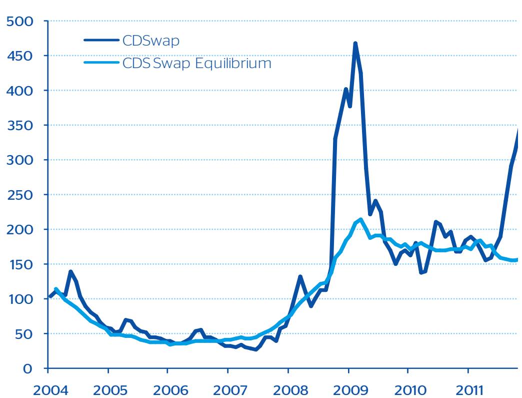
Latam: Sovereign Rating
(Rating agencies and BBVA scores)
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



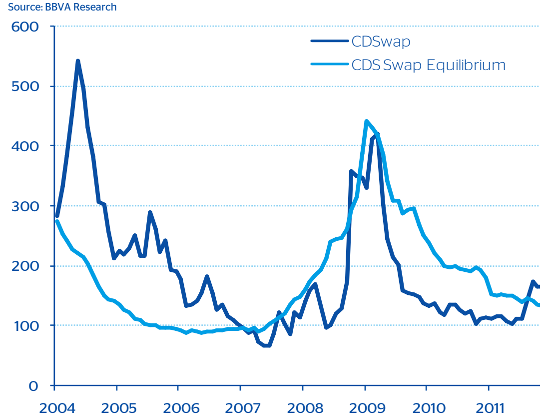
Emerging Asia: Sovereign Rating
(Rating agencies and BBVA scores)
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



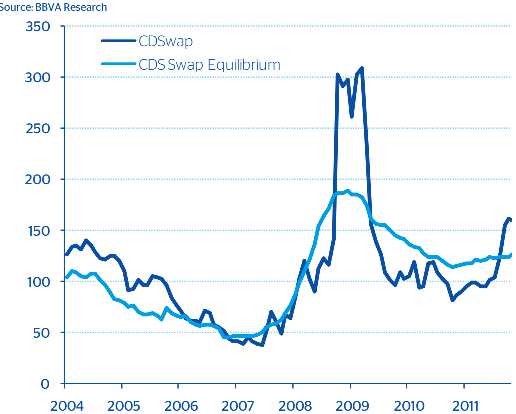
Emerging Europe: CD Swap
(Actual and Equilibrium CDSwap)
Source: BBVA Research



Latam: CD Swap
(Actual and Equilibrium CDSwap)
Source: BBVA Research



Emerging Asia: CD Swap
(Actual and Equilibrium CDSwap)
Source: BBVA Research



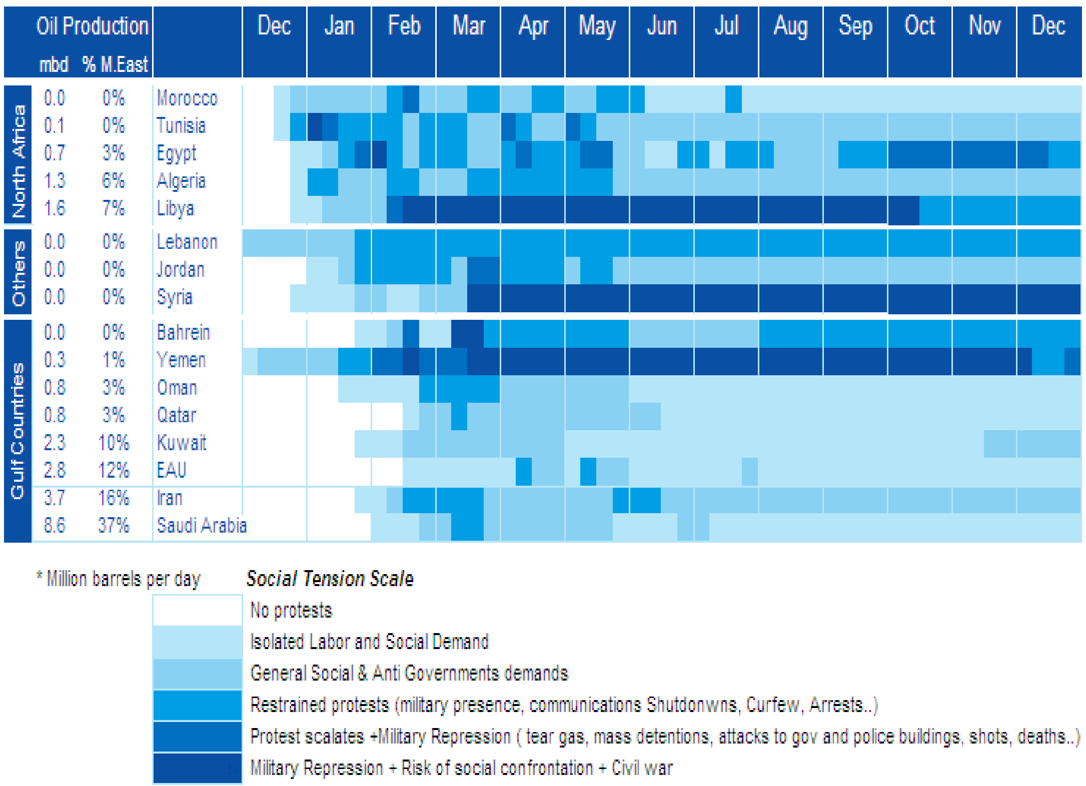
BBVA RESEARCH

Section 4

Special Topic: Tracking Social Unrest in Arab Countries

Arab Countries Social Unrest Tracker

Source:BBVA Research and News Agencies



- **Social unrest risk remains in the Middle East**, although Tensions have notably increased in Syria, where the risk of civil war remains high and for which the Arab League has approved sanctions. In Libya, Gaddafi's death brought some relief but the situation is far from being stable. Egypt´s transition to democracy is being complicated by increasing demands on accelerating transition to a civil regime and uncertainty about the relationship between political parties and the military
- **Geopolitical risk is moving to a more worrisome area,** as Kuwait is the first GCC oil player to register loud protests, and tensions are on the rise related to Iran, The alleged plot to kill the Saudi Arabia's ambassador in Washington, results from the IAEA inspections and pressure from Western Economies on the Embargo and the possibility of closing the Ormutz Strait by Iranians places the situation at risk
- **Among the risk scenarios, The most likely one is a revival of social unrest in North African countries** (35%), undermined by the domestic economic situation, linkages with Europe and political fragmentation. Meanwhile, scenarios with more serious implications such as a spread of unrest to the biggest oil producers in the area (UAE and Saudi Arabia) and a military confrontation with Iran, still have low probability (10% in each case) but more serial implications

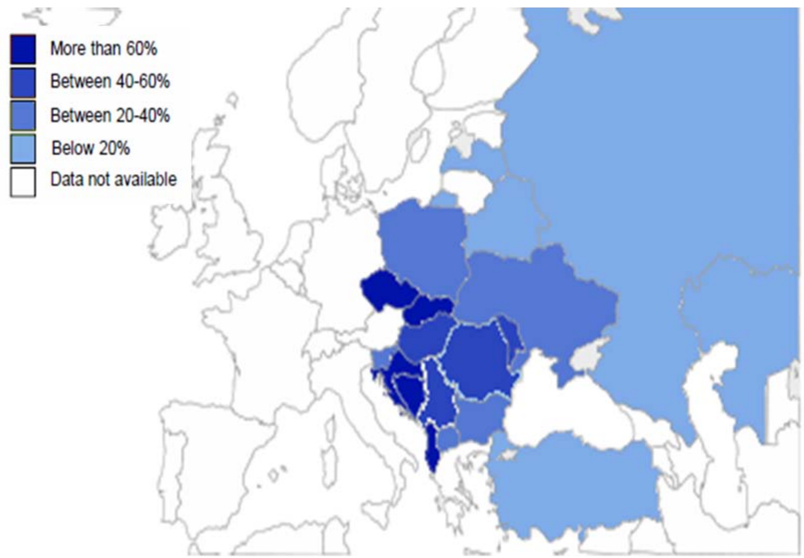
Section 4

Special Topic: Bank Dependence and Euro Liabilities in Eastern Europe

Emerging Europe Bank links to Eurozone

(in % of total assets)

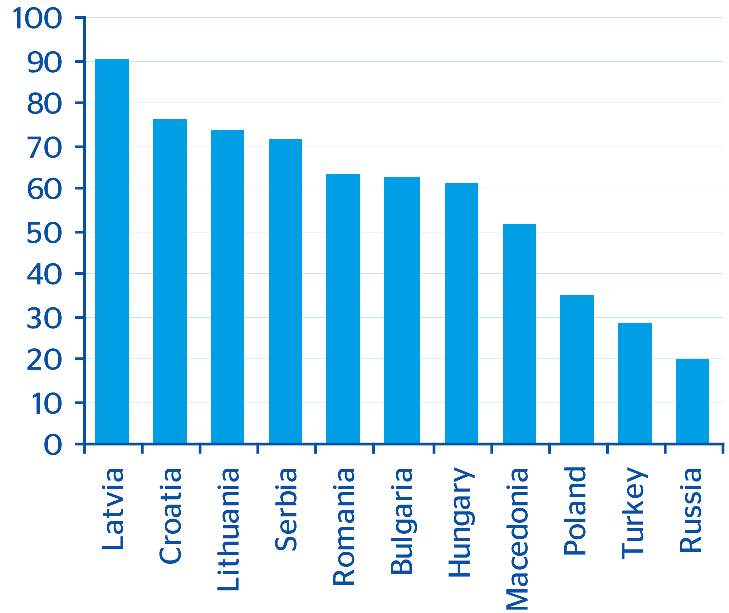
Source: IMF



FX credits in Emerging Europe

(in % of total loans)

Source: EBRD



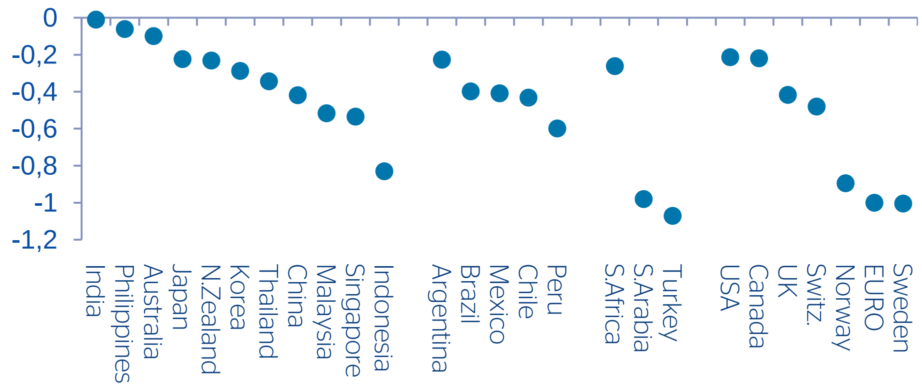
- **Eastern Europe´s Bank dependence on Western Europe countries poses special risks**. Traditional high loan to deposits ratios in the former make some of them highly dependence on funding by Western Europe ´s matrix as contrary to Latam countries their bank subsidiaries are not financially independent. Thus higher capital requirements and funding needs in West Europe Banks makes EM Europe vulnerable to credit restraint
- **This problem could be amplified by the high share of euro denominated liabilities.** As global risk aversion triggers foreign exchange depreciation euro denominated mortgages payments will increase prompting an implicit monetary tightening and increasing the risk of an important increase in non performing loans. This is specially the case of Baltics, Balkans and Hungary

Section 5

Country Risk Spill-Overs

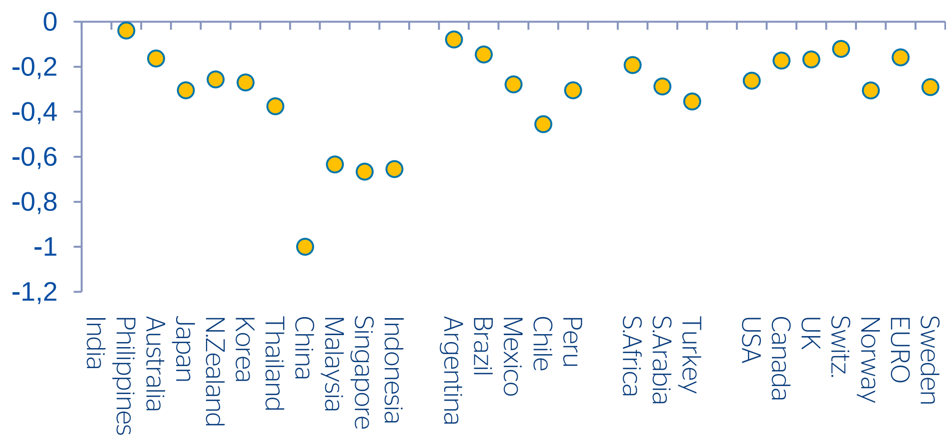
GVAR EuroArea negative growth shock Spillovers

Source:BBVA Research and GVAR



GVAR China negative growth shock Spillovers

Source:BBVA Research and GVAR



- **In our first Country Risk Lab exercise we use a Global VAR model to shed light on negative growth Europe and China spillover effects** cross countries. The approach uses a dynamic multi-country framework for the analysis of the international transmission of shocks comprising 26 economies,. The model is constructed by combining separate models for each of the 26 economies linking core variables within each economy with corresponding trade-weighted foreign variables. The model has both real and financial variables: real GDP, inflation, the real equity price, the real exchange rate, short and long-term interest rates, and the oil price. Output spillovers are measured as ratios of the peak impulse responses of output to the peak impulse response of output in the EA. The spillover coefficients can be thought of as elasticity measures
- **Spill overs of negative GDP shocks in the Euro area would be specially intense in Nordic countries and Turkey** but with lower negative effects in the US and Canada. Among the rest of Emerging countries, **Latin America negative effects are lower but relatively higher in the more open economies**. Asian negative effects are uneven with lower negative effects in the developed countries (Japan, Australia and New Zealand) but higher effects in Indonesia (maybe trough lower oil prices)
- **The negative effects of China´s slow down would be higher in Asian neighbor countries and specially in Singapore , Indonesia and Malaysia.** Peru and Chile would be affected although to a lesser extent than Asian countries

Annex

Methodology : Indicators and Maps

- **Financial Stress Map:** It stress levels of according to the normalized time series movements. Higher positive standard units (1.5 or higher) stands for high levels of stress (dark blue) and lower standard deviations (-1.5 or below) stands for lower level of market stress (lighter colors)
- **Sovereign Rating Index:** An index that translates the three important rating agencies ratings letters codes (Moody´s, Standard & Poor´s and Fitch) to numerical positions from 20 (AAA) to default (0) . The index shows the average of the three rescaled numerical ratings.
- **Sovereign CD Swaps Map**: It shows a color map with 6 different ranges of CD Swaps quotes (darker >500, 300 to 500, 200 to 300, 100 to 200, 50 to 100 and the lighter below 50 bp)
- **Downgrade Pressure Map:** The map shows the difference of the current ratings index (numerically scaled from default (0) to AAA (20)) and the implicit ratings according to the Credit Default Swaps. We calculate implicit probabilities of default (PDs) from the observed CDS and the estimated equilibrium spread. For the computation of these PDs we follow a standard methodology as the described in Chan-Lau (2006) and we assume a constant Loss Given Default of 0.6 (Recovery Rate equal to 0.4) for all the countries in the sample. We use the resulting PDs in a cluster analysis to classify each country at every point in time in one of 20 different categories (ratings) to emulate the same 20 categories used by the Rating Agencies..
- **Macroeconomic Vulnerability Map:** Using Principal Component Analysis we construct five different vulnerability indicators that summarize information coming from 17 different variables in several dimensions of economic vulnerability: : Liquidity management (Reserves to Short Term Debt, Reserves to M2, Reserves to Imports for EM countries and Short term public debt relative to total Public Debt for developed countries), External Vulnerability (Current Account Balance, External Debt to Exports and External Debt to GDP),Fiscal Vulnerability (Fiscal Balance and Public Debt to GDP), Macroeconomic Strength (GDP Growth, Unemployment and Inflation) and Institutional Strength: (Rule of Law, Control of Corruption, Government Effectiveness, Political Stability and Absence of Violence, Investor Protection, Number of Days to start a business). Once principal components are calculated we assign colors according to the percentiles position with higher vulnerability scores assigned to the darker blue ranges.
- **Vulnerability Radar:** Shows a static and comparative vulnerability for different countries. For this we assigned several solvency , liquidity management and macro variables relative to the group of the Developed or Emerging countries depending on the country. Finally, we reorder in percentiles from 0 (lower ratio among the countries) to 1 (maximum vulnerabilities) Furthermore Inner positions in the radar shows lower vulnerability meanwhile outer positions stands for higher vulnerability.

Annex

Methodology: Models and BBVA country risk

- **GVAR Model:** The approach uses a dynamic multi-country framework for the analysis of the international transmission of shocks and is based on the GVAR toolbox, launched in December 2010, and sponsored by the ECB. The toolbox is based on work by Dees, di Mauro, Pesaran adn Smith (2007) and has been developed by Centre for Financial Analysis & Policy at Cambridge University. It comprises 26 economies, with the EA as one of the economies covered. The model is constructed by combining separate models for each of the 26 economies linking core variables within each economy with corresponding trade-weighted foreign variables. EA variables are GDP-weighted aggregates of eight countries (Austria, Belgium, Finland, France, Germany, Italy, Netherlands and Spain). The model has both real and financial variables: real GDP, inflation, the real equity price, the real exchange rate, short and long-term interest rates, and the oil price. All the data are observed at the quarterly frequency. More information about the model and the toolbox can downloaded at

  http://www-cfap.jbs.cam.ac.uk/research/gvartoolbox/index.html.
- **BBVA Research Sovereign Ratings Methodology:** We compute our sovereigns ratings by averaging four alternatives sovereign rating models developed at BBVA research:
  - **Credit Default Swaps Panel Data Error Correction Model:** This model forecasts actual and equilibrium levels of CD Swaps for 40 developed and emerging markets. The model allows for dynamic and long run equilibrium deviation of CD Swaps including Global Risk Aversion and Idiosyncratic fundamental variables. The **long run equilibrium CD Swaps** are the result of equilibrium global risk aversion and idiosyncratic fundamental variables are finally converted to a 20 scale sovereign rating scale.
  - **Sovereign Rating Panel Data Ordered Probit with Fixed Effects Model:** The model estimates a sovereign rating index (a 20 numerical scale index of the three sovereign rating agencies) through ordered probit panel data techniques. This model takes into account idiosyncratic fundamental stock and flows sustainability ratios allowing for fixed effects , thus including idiosyncratic country specific effects
  - **Sovereign Rating Panel Data Ordered Probit without Fixed Effects Model:** The model estimates a sovereign rating index (a 20 numerical scale index of the three sovereign rating agencies) through ordered probit panel data techniques. This model takes into account idiosyncratic fundamental stock and flows sustainability but fixed effects are not included, thus all countries are treated symmetrically without including the country specific long run fixed effects.
  - **Sovereign Rating Individual OLS models: These models estimates the sovereign rating index** (a 20 numerical scale index of the three sovereign rating agencies) individually. Furthermore , parameters for the different vulnerability indicators are estimated taken into account the own history of the country independent of the rest of the countries.